

Notice of Allowability

Application No.

10/662,354

Examiner

Rachel Dicht

Applicant(s)

MATSUSHITA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response to election dated 6/13/05.
2. ☒ The allowed claim(s) is/are 4 and 16.
3. ☒ The drawings filed on 16 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 9/16/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Catherine Voisinet on June 23, 2005.

The application has been amended as follows:

- Cancelled claims 1-3, 5-15, and 17-24.

2. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 4 and 16 is the inclusion of the limitation of " $C \cdot \{\mu \cdot L \cdot Q \cdot (N \cdot R)^2 / S\} \leq T/D$. where C is a coefficient of $C = 1.88 \times 10^5$; μ is a viscosity of the ink in Pa·s; L is a height in meter of the ink absorbing body when the ink absorbing body is contained in a compressed state in the ink containing section; Q is a maximum amount of ink, expressed in cubic meter per second, ejected from a nozzle through which the ink containing section ejects ink; N is a cell density, expressed in the number of pores per inch, of the ink absorbing body before the ink absorbing body is contained in the ink containing section; R is a compressibility, which is a volume ratio of the ink absorbing body when the ink absorbing body is contained in a compressed state in the ink containing section to the ink absorbing body before the ink absorbing body is contained in the ink containing section; S is a cross-sectional area of the ink absorbing

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body, expressed in square meter, when the ink absorbing body is contained in a compressed state in the ink containing section; T is a surface tension of the ink, expressed in Newton per meter, absorbed in the ink absorbing body; and D is a diameter of the nozzle expressed in meter". It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

In response to election/restriction, applicant maintains that claims, 4, 5, 9, 10, 11, 12, 16, 17, 21, 22, 23, and 24 all satisfy the condition for not causing depletion of the ink at a maximum amount of ejected ink and are therefore the same species. This is not found persuasive because although all the expressions are made of an expansion of expression (6), half of the claims are in response to ink retaining power of the head, whereas the others are in response to the ink absorbing body's porous material.

Furthermore, claim 9 does not relate to expression (18) obtained by replacing N·R with actual cell density M. Claim 9 state that $Q \cdot M^2 \cdot (\mu \cdot L) \cdot C / S \leq T / D$. However claim 4 states that $C \cdot \{\mu \cdot L \cdot Q \cdot (N \cdot R)^2 / S\} \leq T / D$. IN claim 4, the quantity C is not being divided by the quantity S as is claimed in claim 9. Claims 1-3, 5-15, and 17-24 have been cancelled to put application in condition for allowance.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Haruta et al. (US Pat. No. 5,182,579) teaches an ink tank having an ink absorbing member comprising a porous material having a cell density in the range of 20 inch^{-1} to 60 inch^{-1} and a compressibility of no hither than 10.
- Naishikawa et al. (US Pat. No. 4,806,956) teaches an ink supply member made of polyester fibers with ink having a surface tension of 19 to 21 dyne/cm (0.00019 N/cm to 0.00021 N/cm) and a viscosity of 3 to 7 cp (0.003 to 0.007 Pa·s)
- Price, Jr. (US Pat. No. 4,484,827) teaches an ink cartridge having a length of about 3 inches (0.0762 m) and a width of 1.5 inches.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD

Rebel Dnt
June 23, 2005

[Signature]
LAMSON NGUYEN
PRIMARY EXAMINER
06/25/05